VOLUME 21, 1979



published monthly by the AMERICAN GEOLOGICAL INSTITUTE

One Skyline Place 5205 Leesburg Pike Falls Church, Va. 22041

INTERNATIONAL GEOLOGY REVIEW is published monthly by the AGI Translations Office of the American Geological Institute, 5205 Leesburg Pike, Falls Church, Virginia 22041. Translated papers in these issues are selected from Russian geological journals in all disciplines on the advice of Dr. Nicholas Rast, Chairman of the Department of Geology, University of New Brunswick, and the Translations Subcommittee of the AGI Publications Committee. INTERNATIONAL GEOLOGY REVIEW has an annual subject and author index. Copyright © 1979, American Geological Institute. Printed in the United States of America. All rights reserved. This journal, or parts thereof, may not be reproduced in any form without permission of the AGI Translations Office.

AMERICAN GEOLOGICAL INSTITUTE

A.G. UNKLESBAY Executive Director

THOMAS F. RAFTER, JR. Director of Publications

NANCY DUTRO Editor

JEAN SPENCER Associate Editor

DONALD F. HEMENWAY, JR. Assistant Editor

MARY WYCKOFF Assistant Editor

AGI Translations Office
One Skyline Place
5205 Leesburg Pike
Falls Church, Virginia 22041

TABLE OF CONTENTS **VOLUME 21, 1979**

JANUARY	
Lugov, S.F. TIN MINERALIZATION DURING EVOLUTION OF THE CRUST	
Modnikov, I.S., Chesnokov, L.V., Lebedev-Zinov'yev, A.A., Khaldey, A.Ye., and Frolov, G.I.	
DISTRIBUTION PATTERNS OF URANIUM-MOLYBDENUM MINERALIZATION IN VOLCANIC-TECTONIC COMPLEXES OF REGIONS OF CONTINENTAL VOLCANISM	1:
Doroshenko, N.I., Kabo, V.A., Kryuchkov, A.S., Osmonbetov, K.O., and Yudakhin, F.N. DISTRIBUTION PATTERNS OF TIN AND MERCURY IN THE HERCYNIDES OF KOKSHAAL	25
Muratov, M.V. PRINCIPAL TECTONIC FEATURES OF THE USSR	39
Pashkov, B.R.	
THE SAREZSK SERIES OF THE EASTERN PART OF THE CENTRAL PAMIR (CARBONIFEROUS - UPPER DEVONIAN	51
Dudenko, L.N., and Zhdanov, V.V. CHEMICAL EVOLUTION OF META-ANORTHOSITE ASSEMBLAGE IN THE NORTH- EASTERN KOLA PENINSULA	57
Nadareyshvili, O.Sh. THE GABBRO-HYPERBASITE (OPHIOLITE) ASSOCIATIONAL BELT IN THE MAIN CAUCASUS RANGE	63
Vorob'yev, V.P. MINERAL DISTRIBUTION IN A GOLD BEACH PLACER	72
Sokolovskiy, L.G., Kuznetsova, L.A., and Yezhova, M.P. ISOTOPE COMPOSITION OF URANIUM AND GEOCHEMICAL INDICATORS IN SUBSURFACE WATERS OF WESTERN ARMENIAN VOLCANIC PLATEAU	79
Abramson, Ye.F., Antonenko, V.S., and Petukhov, A.V. THEORY OF GEOCHEMICAL PROSPECTING FOR OIL AND GAS (MATHEMATICAL MODELING OF THE PROCESS OF TRANSFORMATION OF ORGANIC MATTER)	87
Bulakh, A.G. THERMODYNAMIC PROPERTIES AND PHASE TRANSITIONS OF H ₂ O UP TO 1000°C AND 100 KBAR	92
Ivanov, V.V., and Kononov, V.I. PROBLEMS OF THE ORIGIN OF THERMS IN REGIONS OF ACTIVE VOLCANISM	103
Izosov, L.A. THE MARINE DEVONIAN SEQUENCE OF PRIMOR'YE	115
Menner, V.V. THE GENERAL SCALE OF STRATIGRAPHIC SUBDIVISIONS	119
FEBRUARY	
Gladenkov, Yu. B. THE ECOSYSTEMS APPROACH IN STRATIGRAPHY	125

125

ZINSTROD TO SIBAT	
Seslavinskiy, K.B. ORDOVICIAN AND SILURIAN CLIMATES AND GLOBAL CLIMATIC BELTS	140
Mstislavskiy, M.M. SEDIMENTATION CYCLES AND THE PERMIAN-TRIASSIC BOUNDARY, WESTERN PART OF THE TURANIAN PLATE	153
Keller, B. M., Kratts, K.O., Mitrofanov, F. P., Semikhatov, M. A., Sokolov, B.S., and Shurkin, K. A.	
ACHIEVEMENTS IN THE DEVELOPMENT OF A GENERAL STRATIGRAPHIC SCALE FOR THE PRECAMBRIAN OF THE USSR	163
Klevtsova, A.A. LATE RIPHEAN STAGE OF DEVELOPMENT OF THE RUSSIAN PLATE	167
Krayevaya, T.S., and Kremenetskaya, T.N. SEDIMENTS OF "DRY" RIVERS AND LAHARS, AND FEATURES OF THEIR LITHIFI- CATION DURING DIAGENESIS (AS IN THE YOUNG VOLCANOGENIC SEQUENCES OF KAMCHATKA)	181
Levashov, K.K. PALEORIFT STRUCTURE IN THE EASTERN ENVIRONS OF THE SIBERIAN PLAT- FORM	188
Korzhinskiy, D.S. AN ALKALINITY-COMPOSITION DIAGRAM FOR IGNEOUS ROCKS	201
Nalivkina, E.B. AN ARCHEAN OPHIOLITE ASSOCIATION (AS IN THE UKRAINE)	203
Sal'nilov, V.N., and Gan'kina, L.N. OBSERVATION OF ELECTROMAGNETIC PULSES IN HOT ROCK SPECIMENS EMITTED BY SEGREGATION OF MINERALIZING SOLUTIONS	210
Gavrilov, V.P. REGIONAL BELTS OF UPLIFTS AND DOWNWARPINGS ON THE EAST EUROPEAN PLATFORM	217
Geodekyan, A.A., Berlin, Yu.M., Neprochnov, Yu.P., Pilyak, V.L., Trotsyuk, V.Ya., and Ul'mishek, G.F. GEOLOGIC STRUCTURE AND POSSIBLE PETROLEUM PROSPECTS OF THE MIDDLE CASPIAN REGION	219
Guma, V.I., Lisitsyn, A.Ye., Miller, V.V., Starostin, V.A., and Fedorenko, M.Ye. USE OF NEUTRON-RADIATION ANALYSIS IN PROSPECTING FOR BORON DEPOSITS	227
Modnikov, I.S., Skvortsova, K.V., and Sychev, I.V. MINERALOGICAL AND GEOCHEMICAL FEATURES OF URANIUM MINERALIZATION IN LEACHED ZONES IN MINERALIZED TEAR FAULTS	20.1
Petrov, A.I. STRUCTURAL FEATURES OF THE PECHENGA STRUCTURE AND DISTRIBUTION OF	231
THE COPPER-NICKEL MINERALIZATION	238
MARCH	
Petrushevskiy, V.A. THE INDO-PAMIR ZONE - ONE OF THE MOST IMPORTANT TRANSVERSE LINEA- MENTS OF ASIA	249
Akhmedzhanov, M. A., Borisov, O. M., and Fuzaylov, I. A. GEOLOGICAL AND GEOPHYSICAL CHARACTERISTICS OF PRECAMBRIAN FORMA-	mail o
TIONS OF THE MIDDLE AND SOUTHERN TIEN SHAN	271

Bazilevskiy, A.T., and Popovich, V.D. EVOLUTION OF SMALL CRATERS ON LUNAR RELIEF SLOPES	277
Dagelayskaya, I.N., and Moshkin, V.N. PETROLOGY OF THE ANORTHOSITIZATION ZONES IN THE PRECAMBRIAN OF THE ALDAN-STANOVOY SHIELD	281
Ginzburg, A.I., Zdorik, T.B., and Fel'dman, L.G. RARE-METAL CARBONATITES AND RARE-METAL PEGMATITES	291
Varlakov, A.S. SERPENTINIZATION OF ALPINE-TYPE HARZBURGITES	299
Brakhfogel', F.F., and Koval'skiy, V.V. AGE OF THE KIMBERLITE BODIES OF THE SIBERIAN PLATFORM	307
Kudryavtsev, A.S., and Zubov, M.A. MORPHOLOGY, COMPOSITION, AND ZONING IN PRIMARY GEOCHEMICAL HALOS AROUND GOLD-ANTIMONY MINERALIZATION	314
Kostikov, A.T., Rabinovich, S.G., Rossman, G.I., Savinskiy, I.D., and Frolov, G.I. AN ESTIMATE OF THE LEVEL OF INTERSECTION OF MINERALIZATION BASED ON GEOCHEMICAL DATA USING THE METHOD OF PATTERN RECOGNITION	321
Gorbunov, G.I., Makiyevskiy, S.I., and Nikolayeva, K.A. METALLOGENIC ZONATION ASSOCIATED WITH THE TECTONOMAGMATIC ACTIVATION OF THE BALTIC SHIELD	329
Pap, A.M. BASEMENT STRUCTURE OF OLD PLATFORMS	339
Mashkova, T.V. THE OLDEST DEVONIAN CONODONT ASSEMBLAGES IN THE USSR	344
Buyalov, N.I. A METHOD OF FORECASTING PETROLEUM OCCURRENCES	355
Kontorovich, A.E., and Demin, V.I. A METHOD OF ASSESSING THE AMOUNT AND DISTRIBUTION OF OIL AND GAS RESERVES IN LARGE OIL AND GAS BASINS	361
Arbatov, A.A., and Kondakov, A.V. OIL AND GAS OCCURRENCES IN SMALL INTERMONTANE BASINS	368
APRIL	
Neruchev, S.G. AN ATTEMPT AT A QUANTITATIVE ESTIMATE OF THE PARAMETERS OF THE AN- CIENT ATMOSPHERES OF THE EARTH	373
Kononov, V.I. HYDROGEOLOGY OF ICELAND	385
Gabechava, D.Sh., Devidze, N.A., and Tsertsvadze, N.V. RADIOACTIVITY OF SUBSURFACE WATERS AS A CRITERION FOR FORECASTING INTENSITY OF KARST DEVELOPMENT	399
Yushko, S.A., and Lazur, Yu.M. MINERAL ASSOCIATIONS OF THE ZHAKSY-KOTR MANGANESE DEPOSIT (CENTRAL KAZAKHSTAN)	403
Kossovoy, L.S., and Karatayute-Talimaa, V.N. LUDLOVIAN AND DOWNTONIAN OF NORTHERN TIMAN	408

Ronov, A.B., Khain, V.Ye., and Balukhovskiy, A.N. PALEOGENE LITHOLOGIC ASSOCIATIONS OF THE CONTINENTS	415
Rudnik, G.B., Kashintsev, G.L., Skornyakova, N.S., and Matveyenkov, V.V. MAGMATIC ROCKS IN THE CRUSTAL SECTION OF THE MARIANA TRENCH	447
Maksimov, S.P., Botneva, T.A., Kalinko, M.K., and Brindzinskiy, A.M. A DIFFERENTIATED ESTIMATE OF OIL AND GAS PROSPECTS OF WESTERN SIBERIA BASED ON A COMPLEX OF GEOLOGICAL AND GEOCHEMICAL INFOR- MATION	454
Svikhnushin, N.M., Aseyev, V.S., Dzhardzhur, A., Imam, A., and Sallyum, S. USE OF GEOLOGICAL-STATISTICAL SECTIONS TO INVESTIGATE OIL POOLS IN CARBONATE TRAPS	461
Sokolov, V. L., and Simonenko, V. F. EVOLUTION OF GAS FORMATION DURING COALIFICATION (FROM EXPERIMENTAL DATA)	464
Nesterov, I.I., Shpil'man, V.I., Myasnikova, G.P., Plavnik, G.I., Zavgorodnyaya, L.D., Krasnova, G.N., and Sudat, L.G. NEW CHARACTERISTICS OF POTENTIAL RESOURCES	471
Akramkhodzhayev, A.M., and Kirshin, A.V. TEMPERATURE-TIME RELATION IN THE ALTERATION OF THE PARENT OR- GANIC MATTER OF OIL AND GAS	476
Zhizhchenko, B.P. GENERATION OF HYDROCARBON GASES IN RECENT SEDIMENTS	481
Simonov, M.A., Malinko, S.V., Belov, N.V., Kazanskaya, Ye.V., Yegorov-Tismenko, Yu.K., Fedorenko, M.B., Belokoneva, Ye.L., Yamnova, N.A., and Kuznetsova, N.N.	404
THE NEW MINERAL HEXAHYDROBORITE, Ca[B(OH) ₄] ₂ ·2H ₂ O	491
THE NEW MINERAL HEXAHYDROBORITE, Ca[B(OH) ₄] ₂ ·2H ₂ O	491
	491
MAY Sviridov, N.I., and Litvin, V.M.	
MAY Sviridov, N.I., and Litvin, V.M. STRUCTURE OF THE SOUTHWESTERN BALTIC SEA FLOOR Rezanov, I.A. MAJOR SINKINGS OF THE OCEAN FLOOR AND THE CONSTANCY OF SEA LEVEL Dobrynin, V.M., Rapoport, M.B., Serebryakov, V.A., Karapetov, G.A., Malkin, A.L., Martynov, V.G., and Matusevich, V.Yu. PREDICTION OF ANOMALOUSLY HIGH INTERVAL PRESSURES FROM SEISMIC	497 509
MAY Sviridov, N.I., and Litvin, V.M. STRUCTURE OF THE SOUTHWESTERN BALTIC SEA FLOOR Rezanov, I.A. MAJOR SINKINGS OF THE OCEAN FLOOR AND THE CONSTANCY OF SEA LEVEL Dobrynin, V.M., Rapoport, M.B., Serebryakov, V.A., Karapetov, G.A., Malkin, A.L., Martynov, V.G., and Matusevich, V.Yu. PREDICTION OF ANOMALOUSLY HIGH INTERVAL PRESSURES FROM SEISMIC	497
MAY Sviridov, N.I., and Litvin, V.M. STRUCTURE OF THE SOUTHWESTERN BALTIC SEA FLOOR Rezanov, I.A. MAJOR SINKINGS OF THE OCEAN FLOOR AND THE CONSTANCY OF SEA LEVEL Dobrynin, V.M., Rapoport, M.B., Serebryakov, V.A., Karapetov, G.A., Malkin, A.L., Martynov, V.G., and Matusevich, V.Yu. PREDICTION OF ANOMALOUSLY HIGH INTERVAL PRESSURES FROM SEISMIC DATA Kushnirov, V.V. EFFECT OF THE INITIAL RATIO OF LIQUID AND GASEOUS HYDROCARBONS ON	497 509 517
MAY Sviridov, N.I., and Litvin, V.M. STRUCTURE OF THE SOUTHWESTERN BALTIC SEA FLOOR Rezanov, I.A. MAJOR SINKINGS OF THE OCEAN FLOOR AND THE CONSTANCY OF SEA LEVEL Dobrynin, V.M., Rapoport, M.B., Serebryakov, V.A., Karapetov, G.A., Malkin, A.L., Martynov, V.G., and Matusevich, V.Yu. PREDICTION OF ANOMALOUSLY HIGH INTERVAL PRESSURES FROM SEISMIC DATA Kushnirov, V.V. EFFECT OF THE INITIAL RATIO OF LIQUID AND GASEOUS HYDROCARBONS ON FORMATION OF GAS CONDENSATE COMPOSITION Syngayevskiy, Ye.D., Lebedev, V.S., Safronova, T.P., and Sushilin, A.V. FRACTIONATION OF CARBON ISOTOPES DURING MIGRATION OF HYDROCARBONS	497 509 517 523
MAY Sviridov, N.I., and Litvin, V.M. STRUCTURE OF THE SOUTHWESTERN BALTIC SEA FLOOR Rezanov, I.A. MAJOR SINKINGS OF THE OCEAN FLOOR AND THE CONSTANCY OF SEA LEVEL Dobrynin, V.M., Rapoport, M.B., Serebryakov, V.A., Karapetov, G.A., Malkin, A.L., Martynov, V.G., and Matusevich, V.Yu. PREDICTION OF ANOMALOUSLY HIGH INTERVAL PRESSURES FROM SEISMIC DATA Kushnirov, V.V. EFFECT OF THE INITIAL RATIO OF LIQUID AND GASEOUS HYDROCARBONS ON FORMATION OF GAS CONDENSATE COMPOSITION Syngayevskiy, Ye.D., Lebedev, V.S., Safronova, T.P., and Sushilin, A.V. FRACTIONATION OF CARBON ISOTOPES DURING MIGRATION OF HYDROCARBONS IN THE GAS PHASE THROUGH ROCKS Dakhnov, V.N. INFLUENCE OF SHALINESS OF TRAPS ON THE ERROR OF CALCULATIONS OF	497 509 517 523

Brandt, S.B., Bukharov, A.A., Raklinskiy, E.I., Perminov, A.V., Gerasimov, N.S., Isakov, Yu.A., and Yegorova, T.N. AGES OF IGNEOUS COMPLEXES IN THE BAYKAL AND PRIMORYA RIDGES,	
WEST CISBAYKAL	553
Zvyagintsev, L.I., and Borsuk, A.M. GEODYNAMIC PRODUCTION CONDITIONS FOR THE PLIOCENE-ANTHROPOGENE VOLCANIC-PLUTONIC ASSOCIATION IN THE HIGH CAUCASUS	559
Lonshakov, Ye.A., Vakin, Ye.A., Bocharova, G.I., and Okrugin, V.M. VOLCANOGENIC ORE VEINS OF SOUTHEASTERN KAMCHATKA	567
Gladenkov, Yu. B., and Shantser, A. Ye. SIGNIFICANCE OF PALEOMAGNETIC DATA IN THE CENOZOIC STRATIGRAPHY OF CENTRAL AND EASTERN KAMCHATKA	570
Ostrovskiy, I.A. FUGACITY OF CERTAIN GASES (IMPORTANT FOR MINERALIZATION) AT VERY HIGH PARAMETERS	575
Bezrukov, G.N. SOME TYPE FEATURES OF SYNTHETIC DIAMONDS	577
Bulatov, V.K., Gradusov, B.P., and Zotov, A.V. ACID LEACHING OF PHLOGOPITE	588
Afonina, G.G., Makagon, V.M., Shmakin, B.M., Glebov, M.P., and Makrygin, A.I. EFFECTS OF RUBIDIUM AND CESIUM ON THE STRUCTURAL STATES OF POTASH FELDSPARS FROM RARE-METAL PEGMATITES	597
Kamentsev, I.Ye., and Smetannikova, O.G. POWDER-PATTERN DETERMINATION OF COMPOSITION AND Al-Si ORDERING FOR FELDSPARS	605
Drits, V.A., Goncharov, Yu.I., Vezentsev, A.I., and Aleksandrova, V.A. SYNTHESIS OF A NEW HYDRATED LAYER SILICATE CONTAINING MAGNESIUM IN THE TETRAHEDRA	610
Rogova, V.P., Rogov, Yu.G., Drits, V.A., and Kuznetsova, N.N. CHAROITE, A NEW MINERAL AND A NEW JEWELRY STONE	615
JUNE	
Frolova, T.I., Gushchin, A.V., Burikova, I.A., and Frolov, V.T. ORIGIN OF BASALTS IN THE TRANSITION ZONE FROM CONTINENT TO OCEAN	621
Karamata, S. THE ORIGIN OF THE IGNEOUS ROCKS OF YUGOSLAVIA AND THEIR METALLO- GENY	633
Shumakov, V.G., Budanova, K.T., and Budanov, V.I. CLASSIFICATION OF METAHYPERBASITES AND METABASITES ON THE BASIS OF PETROCHEMICAL DATA (SOUTHWEST PAMIR)	643
Suslova, S.N. PETROCHEMICAL CHARACTERISTICS OF KOMATIITES FROM EARLY PRE- CAMBRIAN VOLCANITE COMPLEXES IN THE KOLA PENINSULA	654
Zlenko, B.F., and Konovalov, N.A. WOLLASTONITE ROCKS AND THEIR ASSOCIATION WITH COPPER MINERALIZA- TION	665
Rafal'skiy, R.P. THERMODYNAMIC ANALYSIS OF EQUILIBRIA IN GEOCHEMISTRY AND URANIUM DEPOSITION CONDITIONS IN THE SUPERGENESIS ZONE	672

Guzhova, N.G., and Chepizhnaya, E.A. RADIOACTIVE ELEMENTS IN THE ROCKS OF SOME NEAR-SURFACE GOLD-ORE DEPOSITS	687
Rudashevskiy, N.S., Mitenkov, G.A., Karpenkov, A.M., and Shishkin, N.N. SILVER-CONTAINING PENTLANDITE Ag(Fe, Ni)8S8 — THE INDEPENDENT MIN- ERAL SPECIES, ARGENTOPENTLANDITE	695
Slobodskoy, R.M. HETEROORGANIC COMPOUNDS AND ENDOGENOUS ORE FORMATION	699
Paley, I.P., and Zhuravleva, Z.A. NEW DATA ON THE STRUCTURE OF THE KERULEN SUTURAL ZONE (MONGOLIA)	708
Luzgin, B.K. RELIEF OF PIEDMONTS AND STRUCTURE OF MARGINAL SUTURE ZONES (AS EXEMPLIFIED BY KOPET-DAG)	711
Ruchkin, G.V., Bogovin, V.D., Donets, A.I., Isakovich, I.Z., Konkin, V.D., and Krutiy, V.M. LEAD-ZINC MINERALIZATION IN THE VENDIAN CARBONATE SEQUENCES OF SOUTHEASTERN YAKUTIA (SARDANA ORE REGION)	721
Fomin, V.M., and Voleysho, V.O. MECHANISM OF THE FORMATION OF THE STRESS STATE IN EARTHQUAKE FOCI, CAUSED BY MAN'S ACTIVITY	736
JULY	
Il'in, A.V. VENDIAN-CAMBRIAN BASALTOIDS OF NORTHERN MONGOLIA	745
Rossovskiy, L.N., and Konovalenko, S.I. FEATURES OF THE FORMATION OF THE RARE-METAL PEGMATITES UNDER CONDITIONS OF COMPRESSION AND TENSION (AS EXEMPLIFIED BY THE HINDU KUSH REGION)	755
Koptev, I.I., Bezzubtsev, V.V., and Shipitsyn, V.A. THE LOWER BOUNDARY OF THE CAMBRIAN SYSTEM IN TAYMYR	765
Akhmet'yev, M.A., and Gladenkov, Yu.B. A STRATIGRAPHIC SCHEME FOR THE CENOZOIC OF ICELAND AND ITS PALEON-TOLOGIC BASIS	769
Shilo, N.A., Babkin, P.V., Belyy, V.F., and Sidorov, A.A. EAST ASIAN SYSTEM OF MARGINAL VOLCANOGENIC BELTS (FEATURES OF STRUCTURE, MAGMATISM, AND METALLOGENESIS)	774
Druzhinin, V.S. CHARACTERISTICS OF DEEP-SEATED FAULTS IN THE URALS BASED ON SEIS- MIC DATA	781
Borshchevskiy, Yu. A., and Pokalov, V. T. OXYGEN ISOTOPE COMPOSITION OF QUARTZ AS AN INDICATOR OF ORIGIN AND PHASE EVOLUTION OF ORE MINERALIZATION	790
Buadze, V.I., and Kaviladze, M.Sh. SULFUR ISOTOPES AND PROBLEMS OF ORIGIN OF PYRITE DEPOSITS OF THE URUP REGION (NORTHERN CAUCASUS)	795
Dvorov, V.I., and Pavlov, D.I. NEAR-FAULT ZONES OF SULFIDE ENRICHMENT AND A POSSIBLE MECHANISM FOR FORMATION OF METALLIFEROUS BRINES	806

Andrusenko, N.I. TEMPERATURE ZONATION OF GOLD-SILVER DEPOSITS	815
Petrovskaya, N.V., Novgorodova, M.I., Frolova, K.Ye., and Tsepin, A.I. KUSTELITE AND DISCONTINUITY IN NATURAL GOLD-SILVER SOLID SOLUTIONS	825
Srapionyan, M. G., and Vartanyan, S. Ya. PHYSICO-MECHANICAL PROPERTIES OF ROCKS AND STRUCTURAL-LITHO- LOGIC CONDITIONS OF MINERALIZATION IN COPPER-MOLYBDENUM DE- POSITS OF ARMENIA	833
Chekvaidze, V.B., Isakovich, I.Z., and Kudryavtseva, N.G. ORIGIN OF POLYMETALLIC DEPOSITS OF RUDNYY ALTAY IN THE LIGHT OF NEW DATA BASED ON A STUDY OF WALL-ROCK ALTERATION AND ORES	839
Kovderko, V.E. SOME GENERAL PROBLEMS CONCERNING THE FORMATION OF STRATIFORM POLYMETALLIC DEPOSITS	843
Zhabin, A.G. RATE OF LITHIFICATION OF SULFIDE VOLCANOGENIC-SEDIMENTARY ORES AND THE ORIGIN OF ORE-CLASTS	847
Baskina, V.A., Volchanskaya, I.K., Gundsambuu, Ts., and Nikitina, I.V. CELESTITE MINERALIZATION OF SOUTHERN MONGOLIA	857
Onikiyenko, L.D., and Yushko, S.A. A PROCEDURE FOR DIAGNOSTIC ETCHING OF ORE MINERALS BY MEANS OF A CONICAL ADAPTER ON AN OBJECTIVE LENS	867
AUGUST	
Maksimova, S.V. BIOGENIC SILICITES, AN INDICATOR OF THE ACTIVITY OF DEEP-SEATED FAULTS	869
Maslenikov, A.V., and Zaytsev, V.N. STRUCTURE REFINEMENT FOR NATURAL HEDENBERGITE	877
Gladenkov, Yu. B. COMPARISON OF LATE CENOZOIC MOLLUSCAN ASSEMBLAGES IN NORTHERN REGIONS OF THE ATLANTIC AND PACIFIC OCEANS	880
Ivanov, V.V., Medovyy, V.I., and Dobrovol'skaya, V.I. FIELDS OF HELIUM CONCENTRATIONS IN SEDIMENTARY SEQUENCES	891
Amurskiy, G.I., Goncharov, E.S., Solov'yev, N.N., and Zhabrev, I.P. DISTRIBUTION PATTERNS AND FORMATION CONDITIONS OF POOLS OF HYDRO- GEN SULFIDE - BEARING GASES	904
Starobinets, I.S., Bartashevich, O.V., Yemets, T.P., and Lopatin, N.V. CRITERIA FOR EVALUATING GAS AND BITUMEN ANOMALIES DETECTED BY GEOCHEMICAL PROSPECTING	915
Levin, L.E., Virta, A.N., and Zorina, Yu.G. SOME PROBABLE RELATIONSHIPS BETWEEN TECTONICS AND PETROLEUM OCCURRENCES WITHIN THE FAR EASTERN SEAS (JAPAN, OKHOTSK, AND BERING)	920
SOME PROBABLE RELATIONSHIPS BETWEEN TECTONICS AND PETROLEUM OCCURRENCES WITHIN THE FAR EASTERN SEAS (JAPAN, OKHOTSK, AND	920

Andreyeva, O.V. URANIUM-BEARING WALL ROCKS OF QUARTZ—CARBONATE—HYDROMICACEOUS ARGILLIZITES	951
Borsuk, A.M., Tsvetkov, A.A., and Lezin, S.I. PROPYLITIZED ROCKS OF GORNAYA BALKARIYA (NORTHERN CAUCASUS) AND THEIR ASSOCIATED ORE MINERALIZATION	960
Orlov, Yu. L. POLYGENESIS AND TYPOMORPHISM OF DIAMOND IN KIMBERLITE DEPOSITS	975
Orlova, G.P., and Ryabchikov, I.D. SOLUBILITY OF CARBON DIOXIDE IN ALUMINOSILICATE MELTS OF ENHANCED ALKALINITY, AND ORIGIN OF CARBONATITE MAGMAS	982
SEPTEMBER	
Benenson, V.A., Zapivalov, N.P., Kunin, N.Ya., Nesterov, I.I., and Yuferov, Yu.K. FUNDAMENTAL TESTS FOR ASSESSING THE PETROLEUM CAPACITY OF THE PRE-JURASSIC DEPOSITS OF YOUNG PLATES	993
Bakhtin, V.V. INJECTION HALOS OF HYDROCARBONS ABOVE OIL-GAS FIELDS WITH SUPERHIGH PRESSURES	1003
Burshtar, M.S., Mileshina, A.G., Okun'kova, F.Ye., and Fonin, V.A. DISTRIBUTION OF CARBON ISOTOPES IN OILS FROM MESOZOIC DEPOSITS OF EASTERN CISCAUCASIA	1011
Shvemberger, Yu.N. PREDICITNG THE DIMENSIONS OF OIL AND GAS FIELDS	1015
Lishnevskiy, E.N., and Ovchinnikov, L.N. FUNDAMENTAL FEATURES OF STEREOMETALLOGENY ON THE EASTERN FLANK OF THE BAM ZONE	1018
Karayeva, Z.G., Voronina, L.B., Baydukova, V.S., and Kharlamov, Ye.S. NEAR-SURFACE GREISEN DEPOSITS OF TIN	1033
Lapin, A.V. MINERAL PARAGENESES OF APATITE ORES AND CARBONATITES OF THE SEBL'- YAVR MASSIF	1043
Sereda, L.I., Berezner, O.S., and Pisarev, S.A. DISTRIBUTION PATTERNS OF POTASSIUM IN IGNEOUS ROCKS OF THE SOVIET NORTHEAST	1053
Tugarinov, A.I., Bibikova, Ye.V., Shuleshko, I.K., Gracheva, T.V., and Makarov, V.A. URANIUM—LEAD DATING OF METAMORPHIC ROCKS OF THE NORTH LADOGA REGION	1057
Bulin, N.K., Berlyand, N.G., and Bulavko, L.F. DEEP STRUCTURE OF TIMAN-PECHORA PROVINCE (BASED ON GEOPHYSICAL DATA)	1070
Goleva, G.A. METHODOLOGIC BASES FOR HYDROGEOCHEMICAL EXPLORATION FOR ORE DE- POSITS AND PROBLEMS OF THEIR FUTURE IMPROVEMENT	1079
Kraynov, S.R., Petrova, N.G., Rovman, G.P., Elenbogen, A.M., and Baturinskaya, I.V. GEOLOGICAL CONDITIONS OF FORMATION OF MOLDAVIAN FLUORINE-CONTAIN-ING WATERS	1093
Rogovskaya, N.V., Chubarov, V.N., and Semenova-Yerofeyeva, Ye.M. HYDROGEOLOGICAL ASPECTS OF MAPPING AERATION ZONES	1106

		ER	

Savitskiy, V. Ye., and Astashkin, V. A. CAMBRIAN REEF SYSTEMS OF WESTERN YAKUTIA	1117
Danilov, M.A., and Kanev, G.V. DISCOVERY OF PALEOZOIC SPORES IN THE CENTRAL PART OF THE SYNCLINO-RIUM OF THE VETRENYY BELT OF THE BALTIC SHIELD	1127
Novikov, L.A., and Slobodskoy, R.M. MECHANISM OF FORMATION OF DIATREMES	1131
Shcherba, I.G. PLIOCENE-QUATERNARY OLISTOSTROMES OF CRIMEA AND MECHANISM OF THEIR FORMATION	1140
Logvinenko, N.V., Lazurkin, V.M., Gerasimov, V.N., and Shumenko, S.I. RED DEEPWATER CLAYS OF THE NORTHERN PART OF THE PACIFIC OCEAN	1149
Volochkovich, K.L. METALLOGENIC ANALYSIS BASED ON CONCEPTS OF THE NEW GLOBAL TEC- TONICS AND OF GEOSYNCLINAL EVOLUTION (AS IN THE CENTRAL ASIAN BELT)	1159
Nikolayev, P.N. THE STRESS STATE AND MECHANISM OF DEFORMATION OF THE CRUST OF THE ALPINE FOLD REGION	1168
Kropachev, A.P., and Ioganson, A.K. PALEOTECTONICS OF VENDIAN-ALDANIAN DEPOSITS OF THE MAYA-KYLLAKH ZONE (SOUTHEASTERN YAKUTIA)	1179
Agentov, V.B., Dvoryankin, A.I., Kobylyanskiy, Yu.G., Mints, M.V., Filatova, N.I., Politova, S.I., and Samozvantseva, Z.M. ASSOCIATIONAL CLASSIFICATION AND PETROCHEMICAL FEATURES OF VOLCANOGENIC FORMATIONS OF THE OKHOTSK-CHUKOTKA BELT	1188
Lapkin, I. Yu., and Movshovich, Ye. V. JUNCTION BETWEEN THE EAST EUROPEAN PLATFORM AND THE BURIED URAL- DONETS VARISCIDES	1201
Val'kov, V.O., and Frolov, A.A. BOGUTA TUNGSTEN DEPOSIT	1213
Lipovetskiy, A.G., Borodayev, Yu.S., and Zav'yalov, Ye.N. ALEKSITE, PbBi ₂ Te ₂ S ₂ , A NEW MINERAL	1223
Feoktistov, G.D., Ivanov, S.I., Kashayev, A.A., Klyuchanskiy, L.N., Taskina, N.G., and Ushchapovskaya, Z.F. OCCURRENCE OF CHLORMANASSEITE IN THE USSR	1229
Volchegurskiy, L.F., Kozlov, V.V., and Romashov, A.A. USE OF SPACE PHOTOGRAPHS IN THE STUDY OF CRUSTAL STRUCTURES IN PETROLEUM-BEARING REGIONS. REPORT II. REGIONAL RING STRUCTURES (BASED ON THE ARAL-CASPIAN REGION)	1233
NOVEMBER	
Chukhrov, F.V. A UNIQUE SOURCE FOR METALS OF DEEPWATER OCEANIC ORES AND SEDIMENTS	1241
Silant'yev, S.A. METABASITES OF THE EPIDOTE—AMPHIBOLITE METAMORPHIC FACIES OF THE ATLANTIC OCEAN FLOOR	1253

Shterenberg, L. Ye., Yeliseyeva, T.G., Lomova, O.S., and Fomina, L.S.	
COMPOSITION OF Fe-Mn NODULES OF DIFFERENT AGES FROM THE PACIFIC OCEAN	1260
Rotman, V.K. BLOCK STRUCTURE AND METALLOGENY OF THE VOLCANIC ARCS OF EAST ASIA	1267
Malinko, S.V., Berman, I.B., Lisitsyn, A.Ye., and Stolyarova, A.N. BORON IN ROCK-FORMING MINERALS BASED ON DATA FROM A LOCAL RADIO- GRAPHIC ANALYSIS	1274
Parfenov, V.D., Chekhovskikh, M.M., and Yudin, N.I. TYPES AND PROSPECTS OF METAMORPHOGENIC APATITE MINERALIZATION IN CENTRAL ALDAN	1285
Golovin, Ye.A. POSSIBLE MECHANISM FOR FORMATION OF STRATIFORM URANIUM DEPOSITS IN NON-MAGMATIC SEISMOACTIVE REGIONS	1297
Krivtsov, A.I., Samonov, I.Z., and Shabarshov, P.Ya. PRODUCTIVITY OF VARIOUS METALLOGENIC EPOCHS WITH RESPECT TO PYRITIC MINERALIZATION	1301
Ivanov, O.K. FACTORS GOVERNING THE COMPOSITION OF OLIVINE	1307
Shumakov, V.G., Adamchuk, I.P., and Pachadzhanov, D.N. DIFFERENTIATION OF AMPHIBOLITES OF THE GARM MASSIF (SOUTHERN TIEN SHAN) BY METHODS OF MATHEMATICAL STATISTICS	1317
Mints, M.V. IGNIMBRITES: FEATURES OF THEIR COMPOSITION AND MAIN PROBLEMS OF THEIR ORIGIN	1325
Kozlov, V.V., Romashov, A.A., Volchegurskiy, L.F., and Vorob'yev, V.T. USE OF SATELLITE PHOTOGRAPHS TO STUDY DEEP CRUSTAL STRUCTURES OF PETROLIFEROUS REGIONS. REPORT III. LINEAMENTS OF THE ARAL- CASPIAN REGION, THEIR CLASSIFICATION AND ASSOCIATION WITH FRACTURES	1337
Kurbanov, N.K., Kulakov, V.V., Zaryanov, Yu.P., and Antonov, V.A. JURASSIC-CRETACEOUS MAGMATIC ASSOCIATIONS OF THE NORTHEASTERN PART OF THE LESSER CAUCASUS	1345
Vlasov, G.M. SOME PRINCIPLES FOR RECOGNIZING MAGMATOGENIC ORE SYSTEMS	1356
DECEMBER	
Golubeva, L.V. PLEISTOCENE AND HOLOCENE VEGETATION OF NORTHERN MONGOLIA (SE- LENGA AND ORKHON RIVER BASINS)	1365
Vinnichenko, G.P., and Kukhtikov, M.M. NEW DATA ON TERTIARY CONTINENTAL DEPOSITS OF THE SOUTHWESTERN PAMIR	1377
Dukhovskiy, A.A., and Magid, M.Sh. VERTICAL PETROPHYSICAL ZONATION IN INTRUSIVE AND METAMORPHIC ROCKS	1383
Vorob'yev, V.I., Kontar', Ye.S., Prokin, V.A., and Yakovlev, G.F. COPPER DEPOSITS OF THE VEINLET-SEGREGATION TYPE IN THE URALS	1391

Chernyshev, N.M., Yegorkin, A.V., Danilova, E.G., Kun, V.V., and Shcheglova, L.B. DEEP-SEATED STRUCTURE OF THE NORTH OF THE WEST SIBERIAN PLATFORM BASED ON SEISMIC DATA	1400
Spiridonov, E.M., Bezsmertnaya, M.S., Chvilëva, T.N., and Bezsmertnyy, V.V. BILIBINSKITE, Au ₃ Cu ₂ PbTe ₂ , A NEW MINERAL OF GOLD-TELLURIDE DEPOSITS	1411
Dubrovskiy, M.I. THE ALBITE-ANORTHITE-ORTHOCLASE SYSTEM	1416
Aref'yev, O.A., Zabrodina, M.N., Norenkova, I.K., Karpenko, M.N., Makushina, V.M., and Petrov, Al.A. BIOLOGICAL DEGRADATION OF PETROLEUM	1427
Grechishnikov, N.P. PALEOGEOTHERMIC TRANSFORMATION FEATURES OF PETROLIFEROUS DE- POSITS	1431
Shilo, N.A., Sidorov, A.A., and Goncharov, V.I. CONDITIONS OF FORMATION OF ORE DEPOSITS OF VOLCANOGENIC BELTS	1439
Bokonbayev, K.D., and Stavinskiy, V.A. INTRACHAMBER DIFFERENTIATES OF GRANITIC INTRUSIONS AND THEIR ROLE IN THE FORMATION OF ORE DEPOSITS (AS IN KIRGIZIA)	1447
Nalivkina, E.B. ORE BELTS OF THE BASEMENT OF THE EAST EUROPEAN PLATFORM	1457
AUTHOR INDEX	1459
Map of main geographic areas of the USSR used in index	1462

ERRATA FOR VOLUME 21, 1979

Page	As published	Correct version
72, author line	V.B. Vorob'vev	V. P. Vorob'yev
79. author line	L.G. Sokolovkskiy	L.G. Sokolovskiy
No. 2, page iii, 3rd article, 1st author	Sal'nilov	Sal'nikov
No. 3, page ii, 3rd article, 1st author	Ginzburg, A.N.	Ginzburg, A.I.
No. 3, page iii, 2nd article, 3rd author	Rossman, R.I.	Rossman, G.I.
257, col. 2, para. 1, line 1	Pokhvisnova	Pokhvisneva
291, author line	Ginzburg, A.N.	Ginzburg, A.I.
321, title footnote, line 6	R.I. Rossman	G.I. Rossman
No. 4, page iii, 5th article	Zizhchenko, B.P.	Zhizhchenko, B.P.
No. 4, page iii, 6th article, 4th author	Kazanskaya, E.V.	Kazanskaya, Ye.V.
No. 4, page iii, 6th article, 5th author	Egorov-Tizmenko, Yu.K.	Yegorov-Tismenko, Yu.K.
No. 4, page iii, 6th article, 7th author	Belokoneva, E.L.	Belokoneva, Ye.L.
No. 5, page ii, 5th article, last author	Socorro, R.	Sokorro, R.
540, title footnote, 4th line	R. Socorro	R. Sokorro
570-573, Passim	Sredinniy	Sredinnyy
No. 7, page ii, 3rd article, 2nd author	Babkin, N.V.	Babkin, P.V.
774, title footnote, 5th line	N.V. Babkin	P.V. Babkin
975, title footnote,	AN SSSR Izvestiya,	AN SSSR Izvestiya, ser.
3rd line	ser. geol., no. 11	geol., 1977, no. 11
1003, title footnote, 3rd line	1978, p. 137-143	1978, no. 7, p. 137-143